

STREAMLINING LTBI REPORTING IN KAISER PERMANENTE – MIDATLANTIC STATES

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MAPMG HOPE (KP HealthConnect Optimization & Physician Efficiency)

Internal Medicine

Mid-Atlantic Permanente Medical Group

Background: Kaiser Permanente Mid-Atlantic States

FAST FACTS

Founded: **1980**

Headquarters: **Rockville, Maryland**

Comprised of:

- **Kaiser Foundation Health Plan of the Mid-Atlantic States, Inc. (8,500+ Employees)**
- **Mid-Atlantic Permanente Medical Group, P.C. (1,600+ Physicians, 50+ Specialties)**

Medical Offices: **31 (14 Urgent Care locations, 6 open 24/7)**

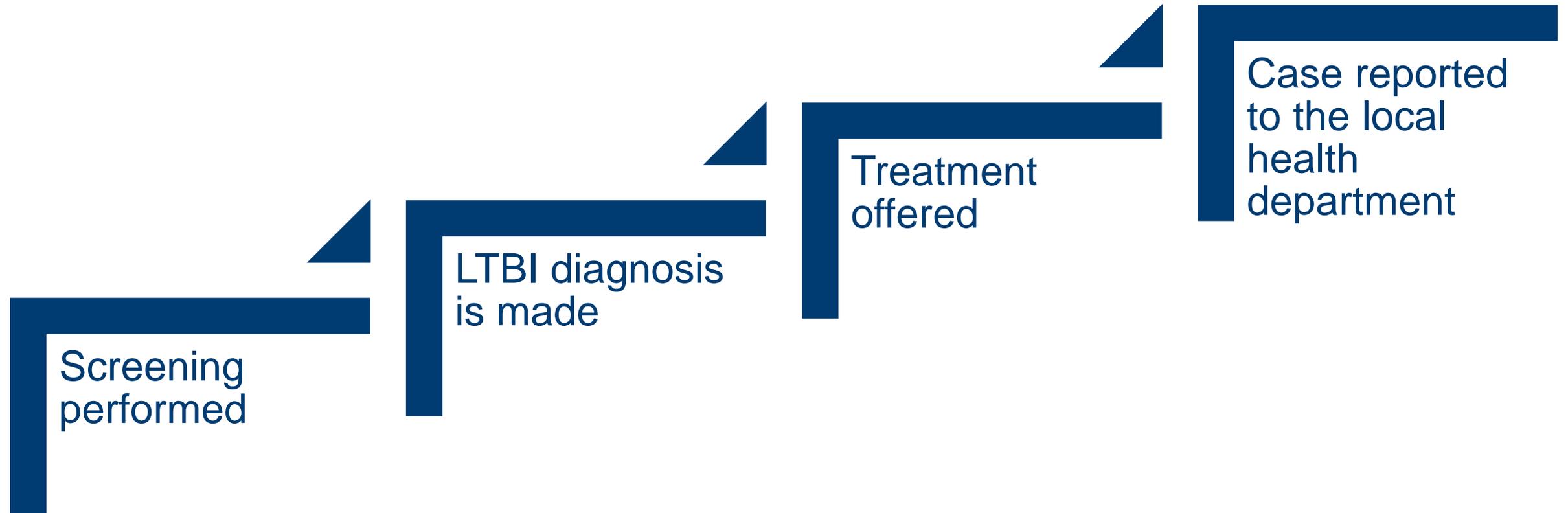
Members Served: **750,000+**



Background: LTBI reporting

- ▲ A new latent tuberculosis (LTBI) reporting regulation went into effect in Maryland in July 2018.
- ▲ State of Virginia followed shortly after with a similar reporting requirement.
- ▲ Our medical group set out to establish a streamlined, standardized process for reporting LBTI cases by leveraging our integrated electronic medical record system.
- ▲ In the process, we also aim to improve clinical processes for TB screening, LTBI management and monitoring of compliance reporting.

Old Reporting Workflow I



Old Reporting Workflow II

Case reporting to the local health department

Search LTBI reporting form (print version, online)

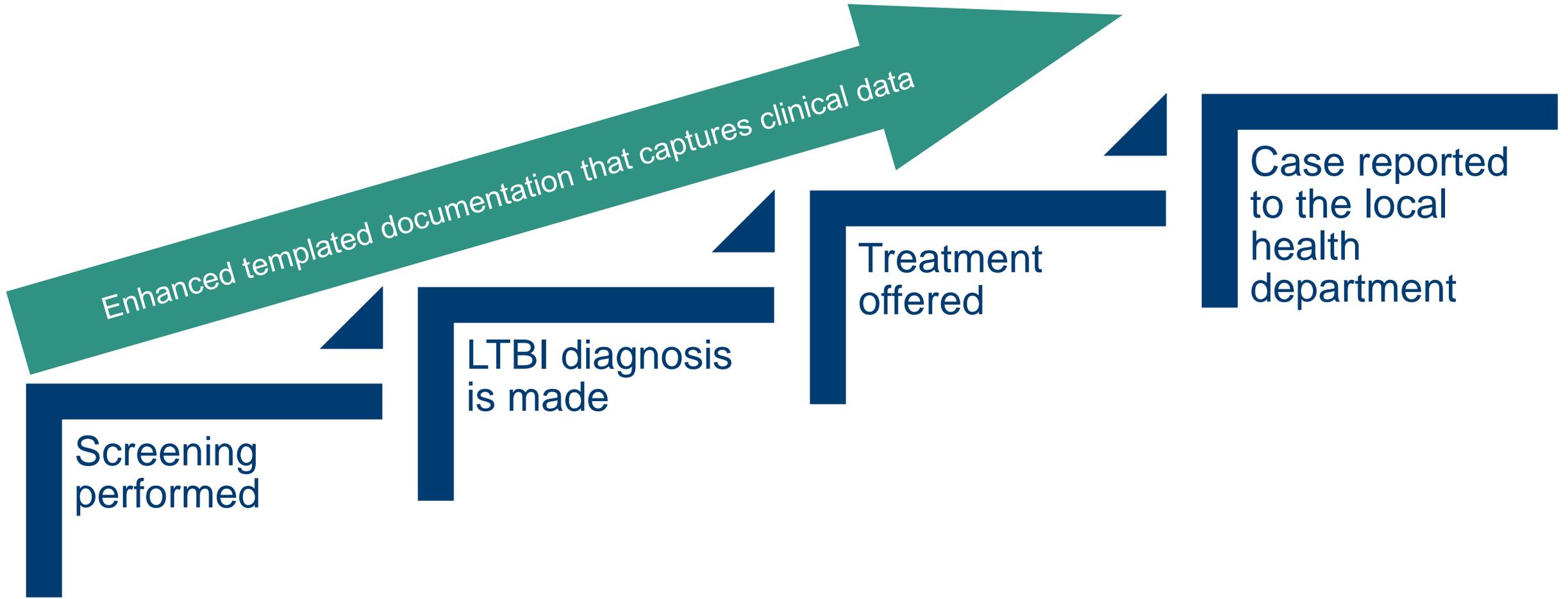


Complete the form manually



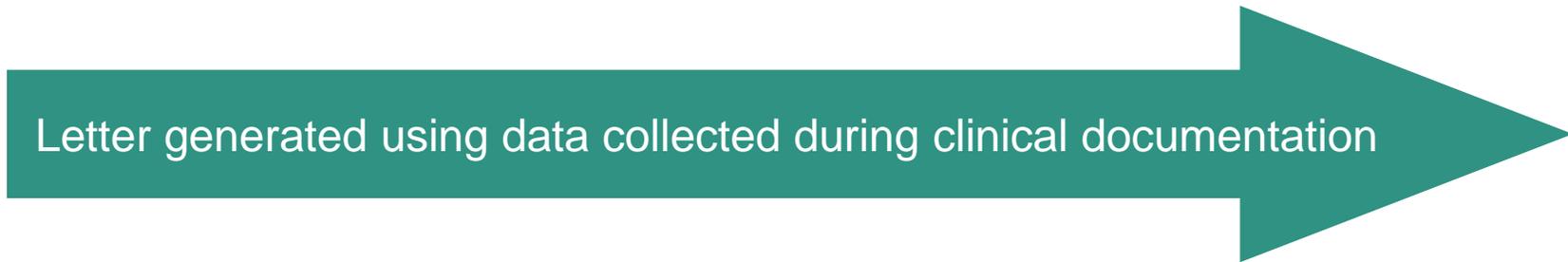
Fax local health department

New Reporting Workflow I



New Reporting Workflow II

Case reporting to the local health department



Leveraging EHR tools to capture data

- ▲ MAPMG uses KP HealthConnect (based on Epic electronic medical record system).
- ▲ We utilized SmartTools to capture data used in letter generation
 - **SmartSet:** standardized order and documentation template
 - **SmartPhrase:** documentation tool
 - **SmartList:** list of pre-configured choices in SmartPhrases
 - **SmartForm:** tool for documenting structured data
 - **SmartData Element:** stores discrete data from SmartLists and SmartForms
 - **SmartLink:** tool that pulls stored information from SmartData Elements into letters

SmartSet

TB Screening and Latent TB Treatment & Reporting [Manage User Versions](#)

This SmartSet has been created for screening of tuberculosis (TB) and treatment and reporting of latent tuberculosis infection (LTBI).

- Latent Tuberculosis Infection: A Guide for Primary Health Care Providers
- Targeted Tuberculosis Testing and Interpreting Tuberculin Skin Test Results
- Interferon-Gamma Release Assays (IGRAs) – Blood Tests for TB Infection
- Treatment Regimens for Latent Tuberculosis Infection (LTBI)

Point-of-care
Clinical Reference

Letter

- Fax LTBI Letter to State Health Department

Fax letter to DOH

Progress Notes

LTBI: PROGRESS NOTES

- RN Note: PPD Placement
- RN Note: PPD Reading
- RN Note: Positive IGRA/Quantiferon TB Test
- Physician Note: LTBI Initial Assessment
- Physician Note: Completion of LTBI Treatment

RN & Physician
Documentation

TB Screening Tool

- TB Screening

TB Screening SmartForm

Screening Tests

- QuantiFERON-TB Gold is preferred for testing patients who have received BCG (either as a vaccine or for cancer therapy) or where poor rates of return for PPD reading is a concern.
- A chest radiograph should be ordered for patients who have a positive PPD or QuantiFERON-TB Gold result.
- PPD test should not be performed in a patient with history of tuberculosis or past PPD positive result.
- PPD is preferred in children under 2 years of age.
- Due to sample handling process in KP-MAS, it is recommended that blood samples for QuantiFERON-TB Gold test be collected Monday to Thursday mornings only.

- ▶ TB Screening (PPD, QuantiFERON-TB Gold)

PPD & IGRA test

[Click for more](#)

Imaging

- ▶ Chest X-ray

CXR

[Click for more](#)

Treatment

- Use this section for treatment of latent tuberculosis infection in HIV-uninfected nonpregnant adults.
- Contact infectious disease physician on the care team if patient is HIV-positive.
- Patients must be evaluated for active TB before initiating treatment for latent TB.
- Select treatment option based on patient specific factors including adherence to treatment and risk for drug interaction.
- Rifampin based regimen are preferred due to efficacy, high completion rate and low hepatotoxicity.
- Pyridoxine (Vitamin B6) 25-50 mg/d should be given to prevent neuropathy caused by Isoniazid (INH).

Latent TB Treatment Options

- Rifampin 600 mg daily (duration: 4 months)
Disp-60 capsule, R-3, Fill Now
- Isoniazid-Rifampin 300-600 mg daily (duration: 3 months)
- Isoniazid 300 mg daily (duration: 6 months)
- Isoniazid 300 mg daily (duration: 9 months)

LTBI treatment

Monitoring During Treatment

- Baseline and routine laboratory monitoring during treatment of LTBI are indicated only when there is a history of liver disease, HIV infection, pregnancy (or within 3 months post-delivery), or regular alcohol use.
- Clinical monitoring should occur on a monthly basis to assess adherence, rationale for treatment, and to identify signs or symptoms of adverse drug reactions.

Lab Orders

- Liver Function Test
Normal, Routine
- Liver Function Test (Standing Order for patients with chronic liver disease)
Normal, Routine, Expires: 6 Months, Manual-release, Interval: Every 4 Weeks, Count: 6

Monitoring lab tests

Diagnoses

LTBI Diagnoses

- SCREENING FOR PULMONARY TB [Z11.1]
- LATENT TB OF LUNG [R76.11]

Diagnoses

Patient Instructions (AVS)

Latent TB: Patient Instructions

- Tuberculin Skin Test (PPD)
- Latent Tuberculosis

Patient Instructions

Ad-hoc Orders

SmartPhrases & SmartLists

SAMPLE NURSE NOTE

Hope Team, PhD came in for reading of the PPD skin test placed on 1/1/2020

Results have been entered into KP HealthConnect.

Lab Results

Component	Value	Date
PPDINTERP	12	01/01/2020
PPDINTERP	Positive	01/01/2020

PPD test is positive -
Yes

US born: No - Country of birth: Neverland

Month/Year arrived in US: 10/2010

Reason for TB Screening: school/educational screening

Risk factors: Diabetes, Smoking, Hepatitis, Alcohol

HIV status at diagnosis: Negative

Confirm that TB Screening SmartForm has been completed and that data is current with special emphasis to TB sign and symptoms.

SAMPLE PHYSICIAN NOTE

Permanente Medicine

Mid-Atlantic Permanente Medical Group

CHIEF COMPLAINT

TB Screening/LTBI evaluation

SUBJECTIVE

Hope Team, PhD is a 77 yr old adult presenting for tuberculosis screening/LTBI evaluation.

The following information was collected by nursing staff during a recent TB screening visit.

U.S. born: No

County of birth: Neverland

Month/Year arrived in US: 10/2010

Date of first LTBI evaluation: 1/1/2020

Reason for LTBI test: School/education screening

HIV status at diagnosis: Negative

Risk factors: Diabetes, Smoking, Hepatitis, Alcohol

PPD Date read: 1/1/2020

Interpretation: 12 mm

IGRA Test date: 12/31/2019

Interpretation: POSITIVE

Date of CXR/chest imaging: 1/2/2020

CXR/chest imaging result: Not Consistent with TB

Relevant past medical, family and/or social history were reviewed.

OBJECTIVE

VITALS: There were no vitals taken for this visit.

GENERAL: Alert, nontoxic

HEENT: Mucus membranes moist, normal conjunctiva

NECK: Supple

Lymphadenopathy: No

CARDIAC: Regular rate and rhythm. No murmurs

CHEST: clear to auscultation

ASSESSMENT/PLAN

History and physical exam consistent with Latent TB infection.

See diagnosis entry for additional diagnoses addressed in this office visit.

Diagnoses, treatment plan, and precautions reviewed with patient.

Treatment offered: Yes

Treatment started: Yes - 6 months Isoniazid

Health Maintenance and Proactive Care gaps reviewed and addressed.

Automated Letter Generation

Maryland Latent Tuberculosis Infection (LTBI) Reporting Form

Provider name: _____
 Provider affiliation: _____
 Provider telephone: _____

For Health Department use only: LTBI case status
 Confirmed Suspected TB Infection Not a case
 LTBI case number (if known): _____

Initial Report Follow-up Report

Last name	First name	Middle	Date of birth (MM/DD/YYYY)	Sex at birth <input type="checkbox"/> Male <input type="checkbox"/> Unknown <input type="checkbox"/> Female
Address		Unit #	City or Town	State
Zip code		County of residence		
Patient telephone number	U.S. - born <input type="checkbox"/> Yes <input type="checkbox"/> No	Country of birth	Month/Year arrived in U.S.	
Race (select all that apply) <input type="checkbox"/> American Indian or Alaskan Native <input type="checkbox"/> Native Hawaiian/Other Pacific Islander			Ethnicity <input type="checkbox"/> Hispanic or Latino <input type="checkbox"/> Not Hispanic or Latino <input type="checkbox"/> Asian <input type="checkbox"/> Black or African-American <input type="checkbox"/> White <input type="checkbox"/> Other Race <input type="checkbox"/> Unknown	

Reporting Information and Risk factors

Name of reporting agency:	Date of first LTBI evaluation:
Reporting agency type <i>select one</i> <input type="checkbox"/> Employment <input type="checkbox"/> Long-term care facility <input type="checkbox"/> Correctional facility <input type="checkbox"/> Immigrant/refugee clinic <input type="checkbox"/> Military <input type="checkbox"/> Private medical care provider <input type="checkbox"/> Local health dept. <input type="checkbox"/> Federally qualified health center <input type="checkbox"/> School/daycare <input type="checkbox"/> Other: _____	Reason for LTBI test <i>select one</i> <input type="checkbox"/> Healthcare worker <input type="checkbox"/> Testing to rule out TB <input type="checkbox"/> School/education screening <input type="checkbox"/> Employment/administrative test <input type="checkbox"/> B-waiver <input type="checkbox"/> Refugee screen (non B-waiver) <input type="checkbox"/> Contact investigation. Contact number, if known: _____ <input type="checkbox"/> Other: _____
HIV status at diagnosis <input type="checkbox"/> Negative <input type="checkbox"/> Positive <input type="checkbox"/> Unknown	Risk factors <i>check all that apply</i> <input type="checkbox"/> Diabetes <input type="checkbox"/> End-stage renal disease <input type="checkbox"/> Congregate living situation <input type="checkbox"/> Smoking <input type="checkbox"/> Homeless within past year <input type="checkbox"/> Immune modulating drugs <input type="checkbox"/> Hepatitis <input type="checkbox"/> Injection drug use <input type="checkbox"/> Pregnancy <input type="checkbox"/> Alcohol <input type="checkbox"/> Non-injection drug use <input type="checkbox"/> Other: _____

Testing and Evaluation

TST Agency: _____ Date read: _____ Interpretation: <input type="checkbox"/> Positive <input type="checkbox"/> Unknown <input type="checkbox"/> Negative <input type="checkbox"/> Not done	IGRA Test date: _____ Test type: <input type="checkbox"/> QFT <input type="checkbox"/> T-SPOT <input type="checkbox"/> Other Interpretation: <input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Unknown <input type="checkbox"/> Borderline/Indeterminate <input type="checkbox"/> Not done <input type="checkbox"/> Failed/Invalid	Smear Collection Date: _____ Result: <input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Unknown <input type="checkbox"/> Not done Culture Collection Date: _____ Result Date: _____ Result: <input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Unknown <input type="checkbox"/> Not done
Date of chest radiography or other chest imaging: _____	Chest radiography or chest imaging result: <input type="checkbox"/> Consistent with TB <input type="checkbox"/> Not consistent with TB <input type="checkbox"/> Unknown <input type="checkbox"/> Not done	
Final evaluation outcome: <input type="checkbox"/> Latent TB infection/no TB <input type="checkbox"/> Active TB, RVCT case number (if known): _____		

Treatment

Was the patient offered LTBI treatment? <input type="checkbox"/> Yes <input type="checkbox"/> No	Did the patient start LTBI treatment? <input type="checkbox"/> Yes <input type="checkbox"/> No
Reason patient did not start LTBI treatment: <input type="checkbox"/> Refused <input type="checkbox"/> Referred for treatment <input type="checkbox"/> Provider decision Referral: _____ <input type="checkbox"/> Previous LTBI treatment <input type="checkbox"/> Previous TB treatment <input type="checkbox"/> Lost to follow-up	LTBI treatment regimen prescribed: <input type="checkbox"/> 9 months Isoniazid <input type="checkbox"/> 4 months Rifampin <input type="checkbox"/> 12 weeks Isoniazid/Rifampentine <input type="checkbox"/> Other: _____
LTBI treatment start date: _____	Reason LTBI treatment stopped: <input type="checkbox"/> Treatment completed <input type="checkbox"/> Pregnancy <input type="checkbox"/> Active TB developed <input type="checkbox"/> Provider decision <input type="checkbox"/> Lost to care <input type="checkbox"/> Patient moved <input type="checkbox"/> Adverse event <input type="checkbox"/> Died <input type="checkbox"/> Other: _____
LTBI treatment end date: _____	
Serious adverse event/reaction to LTBI treatment: <input type="checkbox"/> Hospitalization <input type="checkbox"/> Death <input type="checkbox"/> Other: _____ <input type="checkbox"/> None	



Maryland Latent Tuberculosis Infection (LTBI) Reporting Form

Provider Name: YONAS S TAMRAT
 MD
 Provider affiliation: Kaiser Permanente
 Provider telephone: 703-359-7878

For Health Department use only: LTBI case status
 Confirmed Suspected TB Infection Not a case
 LTBI case number (if known): _____

Initial Report Follow-up Report

Last Name	First Name	Middle	Date of birth (MM/DD/YYYY)	Sex at birth
Team	Hope		3/10/1942	female
Address			County of residence	
2101 E Jefferson St Rockville MD 20852			US	
Patient telephone number	U.S. born	County of birth	Month/Year arrived in US	
240-000-0001	No	Neverland	10/2010	
Race			Ethnicity	
Black/African American				

Reporting Information and Risk factors

Name of reporting agency: Kaiser Permanente Mid-Atlantic States (KPMAS)	Date of first LTBI evaluation: 1/1/2020
Reporting agency type Private medical care provider	Reason for LTBI test School/education screening
HIV status at diagnosis: Negative	Risk factors: Diabetes, Smoking, Hepatitis, Alcohol

Testing and Evaluation

TST Agency: KPMAS Date read: 1/1/2020 Interpretation: 12 mm	IGRA Test date: 12/31/2019 Test type: QFT Interpretation: POSITIVE	Smear Collection Date: Result: Culture:
Date of chest radiography or other chest imaging: 1/2/2020	Chest radiography or chest imaging result: Not consistent with TB	
Final evaluation outcome: Latent TB infection/no TB		

Treatment

Was the patient offered LTBI treatment? Yes	Did the patient start LTBI treatment? Yes
Reason patient did not start LTBI treatment:	LTBI treatment regimen prescribed: 6 month Isoniazid
LTBI treatment start date: 1/2/2020	Reason LTBI treatment stopped:
LTBI treatment end date:	
Serious adverse event/reaction to LTBI treatment:	

Sending fax from the EHR

The screenshot shows the 'LTBI Reporting' window in an EHR system. The 'Communications' tab is active, displaying 'LTBI Reporting Fax Numbers' with instructions and contact information for Maryland and Virginia. Below this is a 'Communications' section with a search bar, filter buttons (1 PCP, 2 Referring, 3 Patient, 4 Print For Patient, 5 Care Team, 6 OB Providers, 7 Previous, 8 Last, 9 Free Text), and a 'To:' field with 'No recipient selected'. A toolbar includes buttons for 'LTBI Maryland', 'LTBI Virginia', 'Consult Initial', 'Consult Follow Up', 'Copy Letter', and 'Other'. The main form area is titled 'Maryland Latent Tuberculosis Infection (LTBI) Reporting Form' and contains the following fields:

Provider Name: YONAS S TAMRAT MD	For Health Department use only: LTBI case status <input type="checkbox"/> Confirmed <input type="checkbox"/> Suspected TB Infection <input type="checkbox"/> Not a case			
Provider affiliation: Kaiser Permanente	LTBI case number (if known): _____			
Provider telephone: 703-359-7878				
<input checked="" type="checkbox"/> Initial Report <input type="checkbox"/> Follow-up Report				
Last Name	First Name	Middle	Date of birth (MM/DD/YYYY)	Sex at birth

Aiming for process improvement that is a Win-Win for All

- ▲ Alignment of all relevant specialties and urgent care
- ▲ Physician and staff education on new tools and workflows
- ▲ Implementation of new LTBI screening and reporting process
- ▲ Evaluation of effectiveness of new process
- ▲ Expansion to other reportable diseases



Thank You!

Questions?